CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT

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COUNTRY East Germany

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SUBJECT VEB Nuclear Station I at Neuglobsow (Electric power station)

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1. In April 1958, it was learned that industrial enterprises in the northern section of the Soviet Zone of Germany have mainly been supplied with electricity from power plants in the southern section of the zone. This resulted in power losses on the long-distance power lines. In order to eliminate this loss and to lessen the difficulties in energy supply in East Germany, it has been planned to construct a nuclear station in the northern part of that zone, near Neuglobsow, northeast of Rheinsberg, between Stechlin Lake and Nehmitz Lake, where the local conditions required for the construction of a nuclear station exist, including the terrain for a 3-km-wide protection zone around the station and large water reservoirs. The building ground in the center of this terrain meets the requirements for the construction of a nuclear station. The surrounding area, which is to serve as protective zone, is partly marshy ground.

2. The USSR and GDR signed an agreement for the construction of this nuclear station and the order was placed in 1956. At that time, Dipl. Phy. Karl Rambusch, chief of the Amt fuer Kernforschung und Kerntechnik (Bureau for Nuclear Research and Nuclear Technique), informed the Soviets which German specialists connected with the establishing of the station, were to go to Moscow. The Moscow firm Teploelektroproyekt, abbreviation TEP, has received the order for the designing of the principal building with the reactor, the powerhouse, the special water purification installation (Wasseraufwertung), and the so-called cemetery work. A Leningrad designing office is involved with the work on the basic features of the project, and a Soviet institute for nuclear research is concerned with technological questions. The complete design done in Moscow was sent to an engineering team consisting of members of the Berlin Design Office for Industrial Construction (Entwurfsbuero fuer Industriebau) and the Berlin Power Plant Projecting Office (Energie-Projektierung). Work on the basic project in Moscow also involved German experts including engineers of the Berlin Design Office for Industrial Construction and technologists of the Berlin Power Plant Projecting Office. Designing work in Moscow pertained only to the main installations of the nuclear station, while the designing of all the auxiliary installations has been done in East Germany by the Berlin Power Plant Projecting Office. A special section, called brigade, now consisting of 10 experts, has been established of members of the two Berlin design offices. This section has to prepare all specifications on the basis of the basic project. All documents

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COUNTRY East Germany/USSR

REPORT

SUBJECT VEB Nuclear Station I at Neuglobsow

DATE OF REPORT 10 July 1958

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DATE OF IN

LAST REPORT ON SUBJECT
(If applicable)

EVALUATION

ANNEXES

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APPRAISAL

1. In April 1958,it was learned that industrial enterprises in the northern section of the Soviet Zone of Germany have mainly been supplied with electricity from power plants in the southern section of the zone. This resulted in power losses on the long-distance power lines. In order to eliminate this loss and to diminish the bottleneck in energy supply in East Germany it has been planned to construct a nuclear station in the northern part of that zone, near Neuglobsow, northeast of Rheinsberg, between Stechlin Lake and Nehmitz Lake, where the required local conditions for the construction of a nuclear station are given including the terrain for a 3-km-wide protection zone around the station and the presence of large water reservoirs. The building ground in the center of this terrain agrees with the requirements for the construction of a nuclear station and the surrounding area, which is to serve as protective zone, is partly marshy ground.

2. The USSR and GDR signed an agreement on the construction of this nuclear station and the order was placed in 1956. At that time Rambusch, chief of the Amt fuer Kernforschung und Kerntechnik (Bureau for Nuclear Research and Nuclear Technique), announced to the Soviets the German specialists who, in connection with the projecting of the station, were to go to Moscow. The Moscow firm Teploelektroproject, abbreviation TEP, has received the order for general projecting work, mainly designing of the principal building with the reactor, the powerhouse, the special water purification installation (Wasseraufwertung), and the so-called cemetery Work on the basic project and on technological questions respectively also involved a Leningrad design office and a Soviet institute for nuclear research. The complete design done in Moscow was sent to an engineer team consisting of members of the Berlin Design Office for Industrial Construction (Entwurfsbuero fuer Industriebau) and the Berlin Power Plant Projecting Office (Energie-Projektierung). Work on the basic project in Moscow also involved German experts including engineers of the Berlin Design Office for Industrial Construction and technologists of the Berlin Power Plant Projecting Office. Designing work in Moscow only referred to the main installations of the nuclear station, while designing work on all auxiliary installations has been done in East Germany by the Berlin Power Plant Projecting Office. A special section, called brigade, now consisting of 10 experts has been established of members of the two Berlin design offices. This section has to prepare all specifications on the basis of the basic project. All documents

have been classified top secret and all members of the section had to sign a declaration that they will never enter the western sector of Berlin. Two members of the section are the engineers Kiss and Osshuets of the Berlin Design Office for Industrial Construction, who were selected for the trip to Moscow. Due to the lack of technological data, construction drawings have progressed only slowly so that delays in target dates have already resulted.

3. The nuclear station will be established in the following two construction phases:

a. Construction phase I:

(1) The planned main building area will consist of:

(a) The reactor building and special water purification installation; this building covers 30 x 73.4 meters; the middle section housing a so-called electro section (Elektroteil) with control mechanics and relays.

(b) The powerhouse, adjacent to the reactor house, with a floor space of 24 x 61.05 meters; a 100-meter-high smokestack is planned close to this building.

(c) A smokestack, not of the regular type, but with a special base portion provided with catching devices for the decay of radioactive gases which are ejected from time to time under favorable weather conditions, in particular in case of damages.

(d) Another building housing a special washing installation, connected with the main building by a bridge, a so-called sluiceway. The radioactive remains, for instance on motor vehicles, are removed in this building which also houses showers etc.

(2) Furthermore, there are plans to construct a heating station the designs of which were not made in Moscow but in the Berlin Power Plant Projecting Office. This station belongs to the auxiliary installations. It is to preheat the installation while the power station is under construction. In the beginning, the heating station is to be fed with coal, later on with oil, as soon as the nuclear station is in operation. The required oil tanks are still under development.

(3) The following installations are also to be established:

(a) An oil dump

(b) An administrative building

(c) A water inlet installation

(d) A water outlet installation

(e) The so-called cemetery which was projected in Moscow. It will be surrounded by a special fence and declared off limits. The so-called dirty road will lead to this cemetery which is to be provided with automatic unloading devices.

b. Construction phase II: Work on this phase will start only after 1961.

4. The planned nuclear station, a pure condenser system, will operate similar to a coal-fired station, but with an atomic reactor as heating installation. The first construction phase provides for the establishment of a 70-mega-watt (MW) turbine. The atomic reactor, planned for the same construction phase, will have an output of 265 MW. During the second construction phase, another turbine with an output of 70 MW and a second reactor are planned to be established. Upon completion, the installation will thus have a total output of 140 MW, including 125 MW delivered to the net and 15 MW for own consumption. The entire reactor, turbine, all water reservoirs, pipe lines, and all installations manufactured of superrefined steel and placed in the radioactive zone will be delivered from the USSR. The uranium fuel will also be supplied from the USSR when the station is put in operation. It has already been calculated that the electric current produced in the nuclear station will be three times as expensive as regular current.

5. The planned reactor will be a water-water-energy reactor of type WWER-2 which operates with thermic neutrons. Ordinary water will be used as moderator. The uranium rods are placed in water. The installation is enclosed by a superrefined steel casing and outwardly by a concrete casing. The nuclear power reactor operates with 151 rods including 132 fixed uranium rods and 19 rods belonging to the control system of the reactor. Of these 19 rods, 14 are also uranium rods which are movable instead of fixed. These 14 rods, required for the so-called coarse control (Grobsteuerung) can be raised showing the rod extension which consists of neutron-absorbing material. Two other rods of the 19 rods represent the so-called precision control (Feinsteuerung). They are also made of uranium, but have a movable core consisting of neutron-absorbing material. The remaining 2 rods, also consisting of neutron-absorbing material, are safety-rods which are to be installed in the reactor in an emergency. An engineer who worked on the basic project in Moscow stated that the reactor requires a total of 20 tons of uranium oxyde including 1.5 % of U-235; one reactor filling lasts for six months before refilling is necessary.

6. The first circuit system (Kreislaufsystem) consists of three sections, each section operating independently. Three sections are conducted through the reactor by means of pipe lines in which circulates overheated water under 100-atm. pressure. The water with a temperature of 272°C looses 17°C while circulating the pipe system at a speed of 7 meters/second. (Errors in the temperature data are possible). Each section involves 3 steam generators and a main circulating drum. The steam produced in the so-called steam generators transmits its heat to the so-called second circuit by means of steam generators. Thus, no water can be conveyed from the first circuit to the second circuit. The water of the first circuit, which also serves for moderating purposes, naturally is radioactive as are the circulating drums and steam generators of the first circuit. The water (steam) of the second circuit is not radioactive, while the water of the first circuit is distilled water taken from the second circuit. The first circuit has a total volume of 111 cubic miters of water. There is the so-called technical distillation and the so-called special distillation, the latter referring to the process of decontaminating the radio-active water of the first circuit. The residues are transported to the so-called cemetery for decontamination.

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7. Various details concerning the power plant construction:

a. The cooling water for the turbines of the nuclear station is to be taken from Nehmitz Lake and, after utilization in the plant, will be piped into Stechlin Lake. From there the water is to flow back into Nehmitz Lake through a canal which has to be improved before. A regulating plant, planned to be established at Nehmitz Lake, is to level up the water level if this has sunk. For this purpose, the regulating plant will pump water from the Havel River into Nehmitz Lake.

b. In connection with the construction of the nuclear station a new transforming plant is to be established near Fuerstenberg/ Mecklenburg where a connecting pipe of the nuclear station is to be coupled with a north-south overhead line. This will provide the possibility to supply Hennigsdorf and Oranienburg with additional electric power from the nuclear station.

c. A railroad spur track will be laid from the nuclear station to Rheinsberg freight station.

d. An approach road is also to be established.

e. Construction work has already started on a housing area in Rheinsberg for the personnel employed in the nuclear station. At first, the construction workers will be billeted there.

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